

REMARKS

Favorable reconsideration is respectfully requested.

The claims are 1 and 3 to 5.

The above amendment is responsive to the rejection on new matter by undoing the amendment of March 7, 2002. Since there is support for the present claims in the specification as filed, it is unnecessary to amend the specification to support the present claims. Accordingly, the amendments to the specification filed on March 7, 2002 have been undone.

In paragraph 8 of the Official Action, claims 1 and 3 to 5 stands rejected under 35 U.S.C. 112.

The rejection states: "In claim 1 (as amended on April 3, 2002), applicants are claiming the amount of present component (E) to be 1.0 - 2.0 wt% based on the weight of the solid components of the photosensitive resin composition. There is no support for this limitation in the original disclosure."

This rejection is respectfully traversed.

Regarding the numerical limitation "1.0 - 2.0 wt%," attention is directed to the original disclosure containing results obtained when the amounts of component (E) are 1.0 wt%, 1.5wt% and 2.0 wt%. See the specification as filed, page 23, Table I. From Table I, it is apparent that excellent effect (depth) can be obtained when the amount of component (E) to be incorporated falls within 1.0 - 2.0 wt%, and particularly excellent effects (depth) can be obtained when 1.0 - 1.5 wt% (claim 3). Thus, the analysis set forth in the Official Action cannot be justified because the above examples and effects clearly defining the claimed range are contained in the original disclosure.

In this regard, see Ex parte Jackson, 110 USPQ 561 (P.O.B.A. 1956) which recognizes that it is appropriate and is not new matter to set ranges of operability based on the examples of the specification. In the present case, the excellent effects for the range now claimed is clear from all Examples of Table I on page 23.

The amendment filed on March 7, 2002 to define the amount of component (E) so as to fall within the range of 1.0 - 2.0 wt% (or 1.0 - 1.5 wt%) is thus narrowing the originally disclosed

Secondly, regarding the basis for calculation of component (E), this component, the same as other essential components (A) to (D), is calculated on the basis of the solid components of the photosensitive resin composition. In the Examples, all relevant values are calculated in the same manner.

Regarding the interpretation of the word "composition", the Examiner relies on the description in [0056], where water (which is a solvent) is employed in preparation of photosensitive resin compositions, and doesn't accept that the term "composition" as used in the present specification refers to a composition which does not contain any solvent.

According to the preparation process herein, firstly, components (A), then (B) through (E), are dissolved by use of a solvent to thereby yield a liquid. That is, as clearly described in [0047] and [0048] of the present specification, a solvent is added to prepare a "photosensitive resin composition liquid." Subsequently, the resultant liquid is applied onto a substrate and brought to dryness through removal of solvent. As a result, a photosensitive resin composition formed only of solid matter is obtained. The amount of the solvent is not particularly limited, so long as it provides a coating liquid that can be easily spread on the substrate. The above process is well known to those having ordinary skill in the art.

More specifically, predetermined amounts of components (A) through (E) (solid components) are dissolved in a suitable amount of a solvent (the amount being such that it suffices to produce a coating liquid), to thereby yield a composition liquid. As stated above, the amount of the solvent to be employed may vary depending on process factors. This mode of preparation is common in this technical field. If the amount of component (E) alone is calculated or defined on the basis of a composition liquid containing a solvent, the entire volume of the liquid, including the volume of the solvent, must be computed at some point during the process for preparing the composition. However, such re-calculation performed midway in the preparation process is unrealistic and would not be performed by the art-skilled.

With reference to the descriptions in [0056] of the present specification, in the process of preparing a composition, when the components are dissolved in water (a solvent), the composition assumes a liquid state (hereinafter referred to a composition liquid). Therefore, before drying, the word "composition" use in [0056] is clearly a composition *liquid*, as is

disclosed in [0047] and [0048] in the original specification. If the Examiner is of the opinion that amending the word "composition" in [0056] should be amended to read --composition liquid-- so as to be in agreement with descriptions in [0047] and [0048] for the purpose of clarity, applicants would be pleased to make such amendment. Please see paragraphs [0047 and 0048].

Again, in describing a composition, if the amounts of some components (components (A) to (D)) are defined on the basis of the composition excluding solvent (i.e., only solid components of the composition) and component (E) is defined on the basis of the composition inclusive of solvent, confusion would occur, and it is unreasonable to interpret the disclosure of [0056] in this manner.

In the present invention, addition of a very small amount of component (E) to components (A) to (D) provides excellent effects of enhanced depth of non-printing area and resolution. Specifically, in a series of steps in which a photosensitive layer is formed on a substrate (here, note that the layer is constituted by a photosensitive resin composition yielded by drying and evaporating solvents from a composition liquid coated on the substrate) and the layer is selectively exposed to light, followed by development to create a pattern, a predetermined amount of component (E) exerts the above effects.

From this point of view, those having ordinary skill in the art would readily understand that the amounts of components (A) through (E) are defined on the basis of the weight of the photosensitive layer; in other words, solid content of the composition.

If the amounts of components (A) to (D) out of five components are defined on the basis of the solid content of the composition, and the amount of component (E) alone is defined on the basis of the composition inclusive of solvent, the amount of the solvent contained in the composition must first be determined. However, as mentioned above, the amount of solvent in the present invention is variable within a range capable of producing such a coating liquid that can be readily applied onto a substrate. Ultimately, the solvent is evaporated through drying, and thus, the solvent itself does not contribute to the effects (depth and resolution) of the present invention.

In addition, nowhere in the present specification is it expressly described that the amounts of components (A) through (D) are defined on the basis of the solid content of the composition,

whereas the amount of component (E) alone is defined on the basis of the composition inclusive of solvent.

Claims 1 and 3 to 5 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Pine (US 4,361,640).

This rejection is respectfully traversed.

Unexpected, excellent results of the present invention vs. Pine have already been substantiated as shown in the Declaration dated May 23, 2000 and September 25, 2000. The Examiner had previously acknowledged the critical significance of the amount of component (E) but now seems to question such unexpected criticality.

In reply, attention is directed to the response filed on October 15, 1999 and the Declaration filed on May 23, 2000, where the incorporation amount of component (E) is calculated with respect to the solid content of the composition.

Also, since the Declaration filed on September 25, 2000 is based on the above-mentioned Declaration filed on May 23, 2000, it is evident that the amount of component (E) mentioned in the September 25, 2000 Declaration is also calculated with respect to the solid content of the composition.

The above-mentioned two Declarations were filed in order to compare the present invention with the invention of Pine et al., through employment of a plasticizer in an amount as disclosed in Pine et al. (0 -18 wt%, preferably 6 -18 wt%). The amount indicated therein is with respect to the solid content.

The Examiner had previously accepted the significance in terms of criticality of the amount of component (E), on the basis of the Declaration filed on September 25, 2000 (corresponding to the working examples of the present invention). Therefore, the Examiner's statement that her previous conclusion was based on the assumption that the amount of component (E) was based on the total weight of the composition, inclusive of the solvent, is untenable, especially in view of the foregoing.

Claims 1, 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al (JP 2-84653, its English abstract, Chemical Abstract AN 1990:506458, and partial English translation for the Japanese document) in view of Kunita et al (5,703,140).

This rejection is also respectfully traversed.

Tanaka discloses a composition containing 0.5 - 10 parts by weight of p-toluenesulfonamide, and Kunita discloses use of a thermal polymerization inhibitor. On the basis of these disclosures, the rejection states that the inventions described in respective claims of the present application are obvious and thus not patentable.

However, the relevant disclosures of Tanaka are limited only to the fact that p-toluenesulfonamide is incorporated so as to obtain improved adhesion of the compound of the substrate. As in the case of Pine, Tanaka is silent about the effects of the present invention (i.e., remarkably improved depth of non-printing area in the photosensitive resin plate and improved resolution).

Therefore, even those skilled in the art would not be motivated to make the present invention by use of the respective components in the defined ranges, so as to yield the effects of the present invention.

The criticality of component (E) has already been discussed above in the above-mentioned Declaration. Therefore, the current 103 rejection over Tanaka should be withdrawn as should the rejection over Pine.

The above two references (Tanaka and Kunita) were cited in the previous Official Action, and applicant's detailed comments concerning them are already of record in the response of March 7, 2002.

The following calculations are drawn to conversion of the amounts of p-toluenesulfonamide contained in the photosensitive compositions described in Examples of Tanaka to those of p-toluenesulfonamide contained in the solid matter of the same photosensitive compositions:

Comparative Example 2 (Described in the last response at page 7).

$$[1.0/(190+5.0+0.2+1.0+1.0+0.05+1.0)-90] \times 100 = \underline{0.924 \text{ wt\%}}$$

Comparative Example 3 (Described in the last response at page 7)

$$[3.0/(190+5.0+0.2+1.0+1.0+0.05+3.0)-90] \times 100 = \underline{2.721 \text{ wt\%}}$$

Comparative Example 4 (presented herewith)

$$[5.0/(190+5.0+0.2+1.0+1.0+0.05+5.0)-90] \times 100 = \underline{4.454 \text{ wt\%}}$$

Examples 1 to 4 (presented herewith)

$$[3.0/(190+5.0+0.2+1.0+1.0+0.05+3.0+3.0)-90] \times 100 = \underline{2.649 \text{ wt \%}}$$

Example 5 (presented herewith)

$$[1.0/(190+5.0+0.2+1.0+1.0+0.05+1.0+3.0)-90] \times 100 = \underline{0.899 \text{ wt \%}}$$

Example 6 (presented herewith)

$$[5.0/(190+5.0+0.2+1.0+1.0+0.05+5.0+3.0)-90] \times 100 = \underline{4.338 \text{ wt \%}}$$

Example 7 (presented herewith)

$$[5.0/(190+5.0+0.2+1.0+1.0+0.05+5.0+5.0)-90] \times 100 = \underline{4.264 \text{ wt \%}}$$

As is apparent from the above calculations, Tanaka fails to disclose or suggest the criticality of the range of component (E) as recited in claim 1 of the present invention (1.0 - 2.0 wt%).

The above comments are also applicable to the rejection on Tanaka and Kunita above, further in view of Ichikawa (US 5,744,282), discussed on page 8 of the previous response.

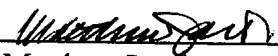
For the foregoing reasons, it is apparent that the rejections on prior art are untenable and should be withdrawn.

No further issues remaining, allowance of this application is respectfully requested.

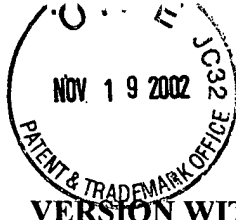
If the Examiner has any comments or proposals for expediting prosecution, please contact the undersigned at the telephone number below.

Respectfully submitted,

Hiroshi TAKANASHI et al.

By: 
Matthew Jacob
Registration No. 25,154
Attorney for Applicants

MJ/jef
Washington, D.C. 20006-1021
Telephone (202) 721-8200
Facsimile (202) 721-8250
November 19, 2002



VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION

RECEIVED
NOV 22 2002
TC 1700 MAIL ROOM

Please rewrite paragraph [0056] as follows:

[0056] EXAMPLES 1 - 17:

(i) Preparation of water-soluble photosensitive resin compositions 1-17:

In 200 parts by weight of water was dissolved 200 parts by weight of polyvinyl alcohol (degree of saponification: 70%, degree of polymerization: 500) as component (A), and then 70 parts by weight of polyethylene glycol diacrylate as component (B), 4 parts by weight of benzyldimethyl ketal as component (C), 0.1 part by weight of methylhydroquinone as component (D), and X [wt. % based on the weight of the photosensitive composition] parts by weight (X: addition amount indicated in Table I below) of p-toluenesulfonamide were added as component (E) to the solution to prepare water-soluble photosensitive resin compositions [(Comparative Examples 1 to 13 and Examples 1-4)] 1 - 17.

Please rewrite paragraph [0057] as follows:

[0057] (ii) Production of photosensitive resin plates [of Comparative Examples 1 to 13 and Examples 1 to 4] 1 - 17:

Each of the above-described water-soluble photosensitive resin compositions [of Comparative Examples 1 to 13 and Examples 1 to 4] 1-17 was coated onto a polyester film (cover film), followed by drying to form a photosensitive layer of 0.7 mm in thickness. Then, a base was adhered thereto to provide photosensitive resin plates (raw plates or to-be-exposed plates) 1 - 17 each [of Comparative Examples 1 to 13 and Examples 1 to 4].

Please rewrite paragraph [0058] as follows:

[0058] (iii) Evaluation of Depth of Non-printing area:

After each of the cover film was released from the photosensitive resin plates [of Comparative Examples 1 to 13 and Examples 1 to 4] 1 - 17, the photosensitive resin plates [of Comparative Examples 1 to 13 and Examples 1 to 4] 1 - 17 were exposed through a mask having

independent fine lines of 150 μm , using a chemical lamp of 20 W from a distance of 45 mm for 10 minutes, and then, the unexposed areas were removed by washing out with water of 35°C using a brush, followed by drying at 80°C for 5 minutes to make printing plates.

Please rewrite paragraph [0060] as follows:

[0060] [Comparative Examples 14 to 26 and Examples 5 to 8] EXAMPLES 18-34:

By following the same procedures as [Comparative Examples 1- 13 and Examples 1 to 4] Examples 1 - 17 above, except that o-toluenesulfonamide was used instead of p-toluene-sulfonamide, water-soluble photosensitive resin compositions [of Comparative Examples 14 to 26 and Examples 5 to 8] 18 - 34 were prepared, and photosensitive resin plates [of Comparative Examples 14 to 26 and Examples 5 to 8] 18 - 34 were obtained.

Please rewrite paragraph [0061] as follows:

[0061] Using the plates [of Comparative Examples 14 to 26 and Examples 5 to 8] 18 - 34, the depth was evaluated in the same manner as described in [Comparative Examples 1 - 13 and Examples 1 to 4] Examples 1 - 17 above. The results are shown in Table I.